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"MARKED UP" SET OF CLAIMS (According to 37 CFR 1.121)

1. (Original) A combustion system, comprising a fuel mixture of oxygen and hydrogen, wherein

combustion temperature is at least partially controlled with the addition of water to combustion.

2. (Original) The system of claim 1, wherein the steam produced by combustion turns at least one steam turbine, and wherein

said steam turbine(s) turn a generator to create electrical energy.

3. (Currently Amended) The system of claim 1 ~~A combustion system, comprising a fuel mixture of oxygen and hydrogen,~~ wherein

mechanical rotating energy is created by said combustion system ~~the exhaust of combustion turns at least one steam turbine which turns a generator, wherein~~

~~electrical energy is created.~~

4. (Currently Amended) The system of claims ~~1 or~~ 3, wherein ~~mechanical rotating energy is created by said combustion system, and wherein~~

said mechanical rotating energy turns a generator to create electrical energy.

5. **Please cancel this claim.**

6. (Currently Amended) The system of claims 1 ~~or 3~~, wherein nitrogen or argon is in said fuel mixture.

7. (Currently Amended) The system of claims 1 ~~or 3~~, wherein air is at least partially used instead of oxygen.

8. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least a portion of the steam produced by combustion is converted to hydrogen by the corrosion of at least one metal.

9. (Currently Amended) The system of claim 8, wherein the production of said hydrogen is increased by an electrical current in said metal(s).

10. (Currently Amended) The system of claims 8 or 9, wherein said hydrogen is at least partially used as fuel in said combustion system.

11. (Currently Amended) The system of claims 1 ~~or 3~~, wherein a generator turns due to the movement of air or water, and wherein

said generator creates electrical energy, and wherein

said electrical energy is at least partially utilized in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion system.

12. (Currently Amended) The system of claims 2, ~~3~~ or 4, wherein said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen.

13. (Currently Amended) The system of claims 1 ~~or 3~~, wherein a photovoltaic cell creates electrical energy, and wherein

said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion system.

14. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least a portion of the energy of combustion powers at least a portion of a cryogenic air separation system.

15. (Original) The system of claim 14, wherein nitrogen from said cryogenic air separation is used to cool any portion of: said cryogenic air separation system, the storage of oxygen, the storage of hydrogen, electrolysis, coolant for said combustion system, said combustion system and any combination thereof.

16. (Original) The system of claim 14, wherein nitrogen from said cryogenic air separation is at least partially used to cool air or water.

17. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least a portion of the energy of combustion powers at least a portion of an air membrane separation system.

18. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least a portion of the energy of combustion powers at least a portion of an air PSA separation system.

19. (Currently Amended) The system of claims 14, 17 or 18, wherein air is separated into at least one of enriched oxygen, pure oxygen and very pure oxygen.

20. (Original) The system of claim 19, wherein argon is substantially removed from said oxygen.

21. (Currently Amended) The system of claim 19~~20~~, wherein at least a portion of said oxygen is used as fuel in said combustion system.

22. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least one of: a corrosion inhibitor, a chelant, a dispersant and any combination therein is added to said combustion system.

23. (Currently Amended) The system of claims 1 ~~or 3~~, wherein the system is at least one of: internal combustion, heating combustion and turbine combustion.

24. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least one of oxygen and hydrogen is stored in a cooled gas state and/or a liquid state by liquefaction.

25. (Original) The system of claim 24, wherein compressor(s) for cooling and/or liquefaction is powered by at least one of: a fuel cell and said combustion system.

26. (Original) The system of claim 25, wherein said fuel cell is powered by hydrogen and at least one of: oxygen and air.

27. (Currently Amended) The system of claims 1 ~~or 3~~, wherein hydrogen and/or oxygen is stored in a mixture with frozen water crystals to form a gel.

28. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least one of: hydrogen, oxygen and water are preheated prior to combustion with the energy from at least one of: ambient temperature, said combustion system, said combustion system exhaust, an electrical radiant heat source and/or any combination therein.

29. (Currently Amended) The system of claim 3[[4]], wherein said mechanical rotating energy from said combustion system enters a transmission, wherein

said transmission engage in a manner that is inversely proportional to the torque and/or work output of said combustion system, wherein

said transmission output mechanical rotating energy turn said generator to create said electrical energy.

30. (Original) The system of claim 29, wherein said transmission engage a flywheel capable of storing rotational kinetic energy, wherein

said flywheel turns said generator.

31. (Currently Amended) The system of claims 29 or 30, wherein at least a portion of said electrical energy is used in the electrolysis of water to hydrogen and oxygen.

32. (Currently Amended) The system of claims 12 or 31, wherein at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion system.

33. (Currently Amended) The system of claims 1 ~~or 3~~, wherein a pressure control device is in said combustion system exhaust.

34. (Currently Amended) The system of claims 1 ~~or 3~~, wherein at least one of combustion heat energy and the exhaust energy of said combustion is used to heat at least one of: a gas and a liquid.

35. (Original) The system of claim 34, wherein at least one of: the gas is air and the liquid is water.

36. (Currently Amended) The system of claim 3~~45~~, wherein said exhaust discharge directly into said air or water.

37. (Currently Amended) The system of claims 1~~, 3~~ or 14, wherein said system is insulated.

38. (Currently Amended) The system of claim 14, wherein hydrogen is separated from a mixture comprising: air and hydrogen or nitrogen and hydrogen.

39. (Currently Amended) The system of claims 1 ~~or 3~~, wherein the temperature of combustion is at least partially controlled with air to combustion in excess over that required to perform combustion, wherein said excess air: reduces ~~to~~ combustion temperature and/or reduces formation of nitrogen oxides from available nitrogen in air.

40. (Currently Amended) The system of claims 1 ~~or 3~~, wherein the temperature of combustion exhaust is at least partially cooled with water.

41. (Original) A combustion engine, comprising a fuel mixture of oxygen and hydrogen, wherein

combustion temperature is at least partially controlled with the addition of water to combustion.

42. (Original) The combustion engine of claim 41, wherein the steam produced by combustion turns at least one steam turbine, and wherein

said steam turbine(s) turn a generator to create electrical energy.

43. (Currently Amended) The combustion engine of claim 41 ~~A combustion engine, comprising a fuel mixture of oxygen and hydrogen,~~ wherein

mechanical rotating energy is created by said combustion engine ~~the exhaust of combustion turns at least one steam turbine which turns a generator, wherein~~

~~electrical energy is created.~~

44. (Currently Amended) The combustion engine of claims ~~41 or 43~~, wherein ~~mechanical rotating energy is created by said combustion engine, and wherein~~

said mechanical rotating energy turns a generator to create electrical energy.

45. **Please cancel this claim.**

46. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein nitrogen or argon is in said fuel mixture.

47. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein air is at least partially used instead of oxygen.

48. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least a portion of the steam produced by combustion is converted to hydrogen by the corrosion of at least one metal.

49. (Currently Amended) The combustion engine of claim 48, wherein the production of said hydrogen is increased by an electrical current in said metal(s).

50. (Currently Amended) The combustion engine of claims 48 or 49, wherein said hydrogen is at least partially used as fuel in said combustion engine.

51. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein a generator turns due to the movement of air or water, and wherein

said generator creates electrical energy, and wherein

said electrical energy is at least partially utilized in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion engine.

52. (Currently Amended) The combustion engine of claims 42, ~~43~~ or 44, wherein said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen.

53. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein a photovoltaic cell creates electrical energy, and wherein

said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion engine.

54. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least a portion of the energy of combustion powers at least a portion of cryogenic air separation.

55. (Currently Amended) The combustion engine of claim 54[[44]], wherein nitrogen from said cryogenic air separation is used to cool any portion of: said cryogenic air separation ~~engine~~, the storage of oxygen, the storage of hydrogen, electrolysis, coolant for said combustion engine, said combustion engine and any combination thereof.

56. (Currently Amended) The combustion engine of claim 5[[1]]4, wherein nitrogen from said cryogenic air separation is at least partially used to cool air or water.

57. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least a portion of the energy of combustion powers at least a portion of air membrane separation.

58. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least a portion of the energy of combustion powers at least a portion of ~~an~~ air PSA separation.

59. (Currently Amended) The combustion engine of claims 54, 57 or 58, wherein air is separated into at least one of enriched oxygen, pure oxygen and very pure oxygen.

60. (Original) The combustion engine of claim 59, wherein argon is substantially removed from said oxygen.

61. (Original) The combustion engine of claim 59, wherein at least a portion of said oxygen is used as fuel in said combustion engine.

62. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least one of: a corrosion inhibitor, a chelant, a dispersant and any combination therein is added to said combustion engine.

63. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein saidthe combustion engine is at least one of: internal combustion, heating combustion and turbine combustion.

64. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least one of oxygen and hydrogen is stored in a cooled gas state and/or a liquid state by liquefaction.

65. (Original) The combustion engine of claim 64, wherein compressor(s) for cooling and/or liquefaction is powered by at least one of: a fuel cell and said combustion engine.

66. (Original) The combustion engine of claim 65, wherein said fuel cell is powered by hydrogen and at least one of: oxygen and air.

67. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein hydrogen and/or oxygen is stored in a mixture with frozen water crystals to form a gel.

68. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least one of: hydrogen, oxygen and water are preheated prior to combustion with the energy from at least one of: ambient temperature, said combustion engine, said combustion engine exhaust, an electrical radiant heat source and/or any combination therein.

69. (Currently Amended) The combustion engine of claim 43[[44]], wherein said mechanical rotating energy from said combustion engine enters a transmission, wherein

said transmission engage in a manner that is inversely proportional to the torque and/or work output of said combustion engine, wherein

said transmission output mechanical rotating energy turn said generator to create said electrical energy.

70. (Original) The combustion engine of claim 69, wherein said transmission engage a flywheel capable of storing rotational kinetic energy, wherein

said flywheel turns said generator.

71. (Currently Amended) The combustion engine of claims 6970 or 701, wherein at least a portion of said electrical energy is used in the electrolysis of water to hydrogen and oxygen.

72. (Original) The combustion engine of claim 52 or 71, wherein at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion engine.

73. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein a pressure control device is in said combustion engine exhaust.

74. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein at least one of combustion heat energy and the exhaust energy of said combustion is used to heat at least one of: a gas and a liquid.

75. (Original) The combustion engine of claim 74, wherein at least one of: the gas is air and the liquid is water.

76. (Currently Amended) The combustion engine of claim 745, wherein said exhaust discharge directly into said air or water.

77. (Currently Amended) The combustion engine of claims 41, ~~3~~ or 54, wherein said combustion engine is insulated.

78. (Currently Amended) The combustion engine of claim 54, wherein hydrogen is separated from a mixture comprising: air and hydrogen or nitrogen and hydrogen.

79. (Currently Amended) The system of claims 41 ~~or 43~~, wherein the temperature of combustion is at least partially controlled with air to combustion in excess over that required to perform combustion, wherein said excess air: reduces ~~to~~ combustion temperature and/or reduces formation of nitrogen oxides from available nitrogen in air.

80. (Currently Amended) The combustion engine of claims 41 ~~or 43~~, wherein the temperature of combustion exhaust is at least partially cooled with water.

81. (Original) A method of combustion, comprising a fuel mixture of oxygen and hydrogen, wherein

combustion temperature is at least partially controlled with the addition of water to combustion.

82. (Original) The method of claim 81, wherein the steam produced by combustion turns at least one steam turbine, and wherein

said steam turbine(s) turn a generator to create electrical energy.

83. (Currently Amended) The method of claim 81,~~A combustion system, comprising a fuel mixture of oxygen and hydrogen,~~ wherein

mechanical rotating energy is created by said combustion.~~the exhaust of combustion turns at least one steam turbine which turns a generator, wherein~~

~~electrical energy is created.~~

84. (Currently Amended) The method of claims ~~81 or 83~~, wherein ~~mechanical rotating energy is created by said combustion system, and wherein~~

said mechanical rotating energy turns a generator to create electrical energy.

85. **Please cancel this claim.**

86. (Currently Amended) The method of claims 81 ~~or 83~~, wherein nitrogen or argon is in said fuel mixture.

87. (Currently Amended) The method of claims 81 ~~or 83~~, wherein air is at least partially used instead of oxygen.

88. (Currently Amended) The method of claims 81 ~~or 83~~, wherein at least a portion of the steam produced by combustion is converted to hydrogen by the corrosion of at least one metal.

89. (Currently Amended) The method of claim 88, wherein the production of said hydrogen is increased by an electrical current in said metal(s).

90. (Currently Amended) The method of claims 88 or 89, wherein said hydrogen is at least partially used as fuel in said combustion.

91. (Currently Amended) The method of claims 81 ~~or 83~~, wherein a generator turns due to the movement of air or water, and wherein

said generator creates electrical energy, and wherein

said electrical energy is at least partially utilized in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion.

92. (Currently Amended) The method of claims 82, ~~3~~ or 84, wherein said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen.

93. (Currently Amended) The method of claims 81 ~~or 83~~, wherein a photovoltaic cell creates electrical energy, and wherein

said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion.

94. (Currently Amended) The method of claims 81 ~~or 83~~, wherein at least a portion of the energy of combustion powers at least a portion of cryogenic air separation.

95. (Currently Amended) The method of claim 94, wherein nitrogen from said cryogenic air separation is used to cool any portion of: said cryogenic air separation~~distillation~~, the storage of oxygen, the storage of hydrogen, electrolysis, coolant for said combustion ~~engine~~, said combustion ~~engine~~ and any combination thereof.

96. (Original) The method of claim 94, wherein nitrogen from said cryogenic air separation is at least partially used to cool air or water.

97. (Currently Amended) The method of claims 81 ~~or 83~~, wherein at least a portion of the energy of combustion powers at least a portion of air membrane separation.

98. (Currently Amended) The method of claims 81 ~~or 83~~, wherein at least a portion of the energy of combustion powers at least a portion of air PSA separation.

99. (Currently Amended) The method of claims 94, 97 or 98, wherein air is separated into at least one of enriched oxygen, pure oxygen and very pure oxygen.

100. (Currently Amended) The method of claims 9[[8]]9, wherein argon is substantially removed from said oxygen.

101. (Currently Amended) The method of claims 99, wherein at least a portion of said oxygen is used as fuel in said combustion.

102. (Currently Amended) The method of claims 81~~-or 83~~, wherein at least one of: a corrosion inhibitor, a chelant, a dispersant and any combination therein is added to said combustion.

103. (Currently Amended) The method of claims 81~~-or 83~~, wherein said combustion is at least one of: internal combustion, heating combustion and turbine combustion.

104. (Currently Amended) The method of claims 81~~-or 83~~, wherein at least one of oxygen and hydrogen is stored in a cooled gas state and/or a liquid state by liquefaction.

105. (Original) The method of claim 104, wherein compressor(s) for cooling and/or liquefaction is powered by at least one of: a fuel cell and said combustion.

106. (Original) The method of claim 105, wherein said fuel cell is powered by hydrogen and at least one of: oxygen and air.

107. (Currently Amended) The method of claims 81~~-or 83~~, wherein hydrogen and/or oxygen is stored in a mixture with frozen water crystals to form a gel.

108. (Currently Amended) The method of claims 81~~-or 83~~, wherein at least one of: hydrogen, oxygen and water are preheated prior to combustion with the energy from at least one of: ambient temperature, said combustion, said combustion exhaust, an electrical radiant heat source and/or any combination therein.

109. (Currently Amended) The method of claim 83[[4]], wherein said mechanical rotating energy from said combustion ~~method~~ enters a transmission, wherein

said transmission engage in a manner that is inversely proportional to the torque and/or work output of said combustion, wherein

said transmission output mechanical rotating energy turn said generator to create said electrical energy.

110. (Original) The method of claim 109, wherein said transmission engage a flywheel capable of storing rotational kinetic energy, wherein

said flywheel turns said generator.

111. (Currently Amended) The method of claims 109 or 110, wherein at least a portion of said electrical energy is used in the electrolysis of water to hydrogen and oxygen.

112. (Original) The method of claim 92 or 111, wherein at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion.

113. (Currently Amended) The method of claims 81 ~~or 83~~, wherein a pressure control device is in said combustion exhaust.

114. (Currently Amended) The method of claims 81 ~~or 83~~, wherein at least one of combustion heat energy and the exhaust energy of said combustion is used to heat at least one of: a gas and a liquid.

115. (Original) The method of claim 114, wherein at least one of: the gas is air and the liquid is water.

116. (Currently Amended) The method of claim 114~~5~~, wherein said exhaust discharge directly into said air or water.

117. (Currently Amended) The method of claims 81~~, 83~~ or 94, incorporating insulation of the method.

118. (Currently Amended) The method of claim 94, wherein hydrogen is separated from a mixture comprising: air and hydrogen or nitrogen and hydrogen.

119. (Currently Amended) The system of claims 81 ~~or 83~~, wherein the temperature of combustion is at least partially controlled with air to combustion in excess over that required to perform combustion, wherein said excess air: reduces ~~to~~ combustion temperature and/or reduces formation of nitrogen oxides from available nitrogen in air.

120. (Currently Amended) The method of claims 81 ~~or 83~~, wherein the temperature of combustion exhaust is at least partially cooled with water.

121. (Currently Amended) An apparatus performing combustion of oxygen and hydrogen in an engine, said engine apparatus comprising,

a. a fuel apparatus comprising:

i. a source of oxygen flow to said engine, comprising an oxygen flow control valve and an oxygen flow sensing device sensing oxygen flow sending an oxygen flow signal proportional to oxygen flow to a controller,

ii. a source of hydrogen flow to said engine, comprising a hydrogen flow control valve and a hydrogen flow sensing device sensing hydrogen flow sending a hydrogen flow signal proportional to hydrogen flow to a controller,

iii. a source of air flow to said engine, comprising an air flow control device and an air flow sensing device sensing air flow sending an air flow signal proportional to air flow to a controller, and

iv. a temperature measurement device measuring at least one of combustion temperature or said combustion engine temperature near said engine combustion chamber sending a temperature signal in proportion to said combustion temperature or said combustion engine temperature to a controller.

b. a coolant apparatus comprising,

i. a source of coolant flow to said engine, comprising a coolant source and a coolant flow control valve, and

ii. a source of combustion water flow to the combustion chamber of said engine, comprising a water source, a combustion water flow control valve and a water flow sensing device sensing water flow sending a combustion water flow signal proportional to water flow to a controller.

c. a control apparatus comprising at least one controller;

i. receiving said proportional flow signal for oxygen, hydrogen, air and combustion water,

ii. receiving said proportional temperature signal,

iii. receiving an external combustion signal set point,

iv. having a setpoint for the ratio of hydrogen to oxygen,

v. having a setpoint for the ratio of hydrogen to combustion water,

vi. having a warm combustion temperature setpoint,

vii. having a coolant combustion temperature setpoint, and

viii. having a hot combustion temperature setpoint, ~~and~~

~~said controller;~~

d. said control apparatus comparing said combustion signal setpoint to said hydrogen flow signal, sending a signal to the hydrogen flow control valve in proportion to the difference in said hydrogen flow signal to said combustion signal setpoint, thereby proportioning said hydrogen flow control valve.

e. said control apparatus comparing said hydrogen flow signal and said oxygen flow signal to the hydrogen to oxygen ratio setpoint, sending a signal to the oxygen flow control valve, thereby proportioning the oxygen flow control valve;

i. in the case wherein the oxygen flow control valve signal is not near 100%, sending a signal to said air flow control device closing said air flow control ~~device~~valve.

ii. in the case wherein the oxygen flow control valve signal is about near 100%, compareing said ~~O~~$_2$-oxygen flow signal and said air flow signal to said hydrogen to oxygen ratio setpoint obtaining an air flow difference, sending a proportional signal to said air flow control device that is in proportion to said difference, thereby proportioning said air flow control ~~device~~valve.

f. said control apparatus comparing said temperature signal to said warm temperature setpoint, said coolant temperature setpoint and said hot temperature setpoint:

i. in the case wherein said temperature signal is less than said warm temperature setpoint, less than said coolant temperature setpoint and less than said hot temperature setpoint, sending a signal to said combustion water flow control valve to close said combustion water flow control valve; and sending a signal to said coolant ~~water~~ flow control valve to~~thereby~~ clos~~cing~~ said coolant ~~water~~ flow control valve.

ii. in the case wherein said temperature signal is equal to or greater than said warm temperature setpoint, less than said coolant temperature setpoint and less than said hot temperature setpoint, obtain a difference between said temperature signal and said low

temperature setpoint, sending a signal in proportion to the difference between said temperature signal and said low temperature setpoint, which obtains a hydrogen to water ratio that is greater than said hydrogen to water ratio setpoint, to said combustion water flow valve, thereby proportioning said combustion water flow control valve; and send a signal to said coolant flow control valve, thereby closing said coolant flow control valve.

iii. in the case wherein said temperature signal is greater than said warm temperature setpoint, equal to or greater than said coolant temperature setpoint and less than said hot temperature setpoint,; obtain a difference between said temperature signal and said high temperature setpoint, sending a signal to said combustion water flow control valve that obtains a hydrogen to water ratio that is equal to said hydrogen to water ratio setpoint, thereby proportioning the combustion water control valve; and sending a signal in proportion to the difference between the temperature signal and said coolant temperature setpoint to said coolant flow control valve, thereby proportioning said coolant flow control valve.

iv. in the case wherein said temperature signal is greater than said warm temperature setpoint, greater than said coolant temperature setpoint and equal to or greater than said hot temperature setpoint, sending a signal to said combustion water flow control valve, thereby opening said combustion water flow control valve 100%, and sending a signal in proportion to the difference between the temperature signal and said coolant temperature setpoint to said coolant flow control valve, thereby proportioning said coolant flow control valve; and sending a signal to said hydrogen flow control valve, thereby closing said hydrogen flow control valve; and sending a signal to said oxygen flow control valve, thereby closing said oxygen flow control valve; and sending a signal to said air flow control valve, thereby closing said air flow control valve.

122. (Original) The apparatus of claim 121, wherein the steam produced by combustion turns at least one steam turbine, and wherein

said steam turbine(s) turn a generator to create electrical energy.

123. (Original) The apparatus of claim 121, wherein mechanical rotating energy is created by said combustion.

124. (Original) The apparatus of claim 123, wherein said mechanical rotating energy turns a generator to create electrical energy.

125. (Original) The apparatus of claim 121, wherein nitrogen or argon is in the oxygen source.

126. **Please cancel this claim.**

127. (Original) The apparatus of claim 121, wherein at least a portion of the steam produced by combustion is converted to hydrogen by the corrosion of at least one metal.

128. (Original) The apparatus of claim 127, wherein the production of said hydrogen is increased by an electrical current in said metal(s).

129. (Currently Amended) The apparatus of claims 127 or 128, wherein at least a portion of said hydrogen is used as fuel in said combustion.

130. (Original) The apparatus of claim 121, wherein a generator turns due to the movement of air or water, and wherein

said generator creates electrical energy, and wherein

said electrical energy is at least partially utilized in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion.

131. (Currently Amended) The apparatus of claims 122 or 124, wherein said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen.

132. (Original) The apparatus of claim 131, wherein at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion.

133. (Currently Amended) The apparatus of claim 1251, wherein a photovoltaic cell creates electrical energy, and wherein

said electrical energy is at least partially used in the electrolysis of water to hydrogen and oxygen, and wherein

at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion apparatus.

134. (Original) The apparatus of claim 121, wherein at least a portion of the energy of combustion powers at least a portion of cryogenic air separation.

135. (Currently Amended) The apparatus of claim 16634, wherein nitrogen from said cryogenic air separation is used to cool any portion of: said cryogenic air ~~distillation~~separation, the storage of oxygen, the storage of hydrogen, electrolysis, coolant for said combustion, said combustion apparatus and any combination thereof.

136. (Currently Amended) The apparatus of claim 16634, wherein nitrogen from said cryogenic air separation is at least partially used to cool air or water.

137. (Currently Amended) The apparatus of claim 1251, wherein at least a portion of the energy of combustion powers at least a portion of an air membrane separation.

138. (Original) The apparatus of claim 121, wherein at least a portion of the energy of combustion powers at least a portion of air PSA separation.

139. (Currently Amended) The apparatus of claims 134, 137 or 138, wherein air is separated into at least one of enriched oxygen, pure oxygen and very pure oxygen.

140. (Original) The apparatus of claim 139, wherein argon is substantially removed from said oxygen.

141. (Original) The apparatus of claim 140, wherein at least a portion of said oxygen is used as fuel in said combustion.

142. (Currently Amended) The apparatus of claim 121, wherein at least one of: a corrosion inhibitor, a chelant, a dispersant and any combination therein is added to said apparatus.

143. (Original) The apparatus of claim 121, wherein at least one of: oxygen and hydrogen is stored in a cooled state or in a liquid state by liquefaction.

144. (Original) The apparatus of claim 143, wherein compressor(s) for cooling and/or liquefaction is powered by at least one of: a fuel cell and said combustion apparatus.

145. (Original) The apparatus of claim 144, wherein said fuel cell is powered by hydrogen and at least one of: oxygen and air.

146. (Original) The apparatus of claim 121, wherein hydrogen and/or oxygen is stored in a mixture with frozen water crystals to form a gel.

147. (Original) The apparatus of claim 121, wherein at least one of: hydrogen, oxygen and water are preheated prior to combustion with the energy from at least one of: ambient temperature, said combustion apparatus, said combustion apparatus exhaust, an electrical radiant heat source and/or any combination therein.

148. (Original) The apparatus of claim 12~~1~~3, wherein said mechanical rotating energy from said combustion apparatus enters a transmission, wherein

said transmission engage in a manner that is inversely proportional to the torque and/or work output of said combustion apparatus, wherein

said transmission output mechanical rotating energy turn said generator to create said electrical energy.

149. (Original) The apparatus of claim 148, wherein said transmission engage a flywheel capable of storing rotational kinetic energy, wherein

said flywheel turns said generator.

150. (Original) The apparatus of claims 149 or 150, wherein at least a portion of said electrical energy is used in the electrolysis of water to hydrogen and oxygen.

151. (Original) The apparatus of claim 149, wherein at least a portion of said hydrogen and/or oxygen is used as fuel in said combustion.

152. (Original) The apparatus of claim 121, wherein a pressure control device is in said combustion apparatus exhaust.

153. (Currently Amended) The apparatus of claim 121, wherein at least one of at least one of combustion heat energy and the exhaust energy of said combustion is used to heat at least one of: a gas and a liquid.

154. (Original) The apparatus of claim 153, wherein at least one of: the gas is air and the liquid is water.

155. (Original) The apparatus of claim 154, wherein said exhaust discharge directly into said air or water.

156. (Currently Amended) The apparatus of claim 121, wherein there is not at least one of: coolant and ~~there is no~~ coolant flow control valve.

157. (Currently Amended) The apparatus of claim 121, wherein there is not at least one of: oxygen source, ~~and there is no~~ oxygen flow measurement device and ~~there is no~~ oxygen flow control valve.

158. (Currently Amended) The apparatus of claim 121, wherein there is not at least one of: combustion water, ~~and there is not~~ combustion water flow measurement device and ~~there is no~~ combustion water flow control valve.

159. (Currently Amended) The apparatus of claims 121, 122 or 134, wherein said apparatus is insulated.

160. (Currently Amended) The apparatus of claim 134, wherein hydrogen is separated from a mixture of air and hydrogen or a mixture of nitrogen and hydrogen.

161. (Currently Amended) The system of claim 121, wherein the temperature of combustion is at least partially controlled with air to combustion in excess over that required to perform combustion, wherein said excess air: reduces combustion temperature and/or reduces formation of nitrogen oxides from available nitrogen in air.

162. The apparatus of claim 121, wherein the temperature of combustion exhaust is at least partially cooled with water.

163. (New) The apparatus of claim 161, wherein there is no combustion water.

164. (New) The apparatus of claim 161 or 163, wherein said system is a jet engine system.

165. (New) The system of claim 39, wherein there is no water addition to combustion

166. (New) The system of claim 39 or 165, wherein said system is a jet engine.

167. (New) The engine of claim 79, wherein there is no water addition to combustion.

168. (New) The engine of claim 79 or 167, wherein said engine is a jet engine.

169. (New) The method of claim 119, wherein there is no water addition to combustion.

170. (New) The method of claim 119 or 169, wherein said method comprises jet propulsion.

"MARKED UP" ABSTRACT

Abstract

This invention presents improved combustion methods, systems, engines and apparatus utilizing H_2, O_2 and H_2O as fuel, thereby providing environmentally friendly combustion products, as well as improved fuel and energy management methods, systems, engines and apparatus. The Water Combustion Technology, WCT, is based upon water (H_2O) chemistry, more specifically H_2O combustion chemistry and thermodynamics. WCT does not use any hydrocarbon fuel source, rather the WCT uses H_2 preferably with O_2 and secondarily with air. The WCT significantly improves the thermodynamics of combustion, thereby significantly improving the efficiency of combustion, utilizing the first and second laws of thermodynamics. The WCT preferably controls combustion temperature with H_2O and secondarily with air in the combustion chamber. The WCT preferably recycles exhaust gas energy as fuel converted from water. The WCT minimizes external cooling loops and minimizes exhaust and/or exhaust energy, thereby maximizing available work and internal energy while minimizing enthalpy and entropy losses.